

Curle Slug Corrector

Installation and Operation Manual

CURLESAW CO.

124 EAST FIRST AVENUE
SUTHERLIN, OREGON 97479 P. O. BOX 618

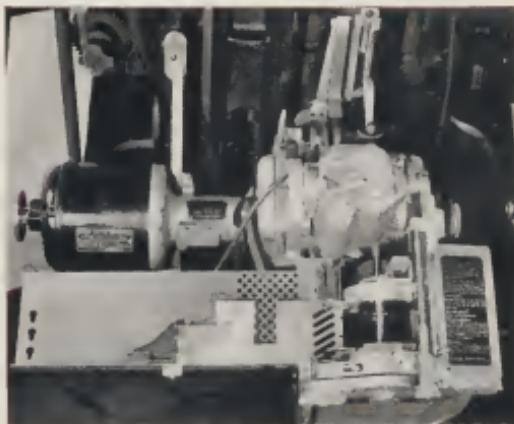


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THE CURLE SLUG CORRECTOR

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Curle Manufacturing Corporation
San Francisco, Calif.

The Curle Slug Corrector

THE CURLE SLUG CORRECTOR is designed for attachment on 30 pica line casting machines and performs several highly desirable operations on the slugs:

1. Trims the rib side of the slug from end to end with maximum accuracy.
2. Trims the rib side of the slug to a fixed thickness, which may be either exactly the same top and bottom, or preferably from one to two ten-thousandths of an inch greater thickness at the bottom.
3. Removes any overhang on the smooth side of the slug.
4. Low slugs blank spaces in any position on the slug if desired.
5. Trims right-hand end of slug, removing taper.
6. Saws the slug to exact measure desired by picas, half picas or odd points.
7. Stacks finished slugs evenly in galley.
8. Eliminates side knives and knife wiper troubles.

—And it performs all these operations automatically!

The Curle Slug Corrector attaches to standard 30-pica Intertypes and Linotypes without alteration of the line-casting machine except that on Intertypes having full length elevator gibs a small cut must be made at the lower end of the right-hand gib.

The drive is direct from a $\frac{1}{4}$ h.p. motor. This motor can be furnished to specifications for 110- or 220-volt 60-cycle A.C. or D.C. supply. The power consumption is so low—about 250 watts—that the supply may be taken from any convenient light circuit. The standard speed of motor is 1750 r.p.m., giving a capacity of 8 slugs per minute.

PRINCIPLE OF OPERATION

The cycle of operation of the Corrector begins when a slug is ejected from the mold. The slug, sliding down the channel between the slug guide and the upper pressure bar, strikes the trip (D) Fig. 14, turning the trip and shaft through a small angle. The trip latch inside the main housing rests against a flat on the trip shaft in such manner that a small rotation of the shaft will lift the latch out of a notch in the reset push rod, which is attached at its lower end to the reset cam arm. When the trip latch is disengaged from the reset push rod, the latter is pulled downward by a spring, in turn pushing the reset cam arm downward so as to release the clutch pin, permitting it to engage in one of the recesses in the clutch gear, thus causing the slug feed cam to start its rotation.

When the slug feed cam has turned through that part of its rotation necessary to carry the feed arm to the lowest point of its travel, a projection on the feed cam actuates the saw cam arm, causing the clutch pin to engage and starting the saw cam cycle. At the same time the slug feed cam continues to rotate until it has completed one full revolution. During this latter portion of the slug feed cam cycle the reset cam arm pushes the reset push rod upward to engage the trip latch and at the proper time pulls the clutch pin out of engagement with the clutch gear, stopping the motion of the cam.

The Corrector is now ready to receive another slug, although the sawing cycle has not been entirely completed. The saw cam is brought to rest by retraction of the clutch pin when the cycle of sawing and delivery is finished.

The operation of the low-slugger cutter is governed by the movement of the small feeler roller under which the slug passes just before encountering the cutter. The low-slugger trip frame in which this roller is mounted transmits the motion to the plunger of the switch (E, Fig. 9) through the adjusting screw (B). When the roller is lifted by passage of type characters, a contact is made by the switch, energizing the magnet enclosed in the side cover of the low-slugger housing. This attracts the armature to the pole pieces, causing the roller on the armature to lift the link actuator arm which, through its linkage, lifts the pawl from the ratchet, allowing the cutter to rise out of cutting position. When the roller drops off the type, the circuit is broken by the switch, the actuator arm drops down, allowing the pawl to engage the ratchet and the cutter is drawn downward into cutting position. Since the roller is mounted ahead of the cutter, it drops off the type face before the cutter is clear of the type, hence a delay in timing of the descent of the cutter is necessary to avoid bleeding. This delay is provided by allowing the ratchet to over-run the point required actually to clear the type.

Whenever it is desired to throw the low-slugger cutter out of operation, the button (B, Fig. 10) on the top of the low-slugger head should be pulled up. This holds the actuator arm up, preventing the pawl from engaging in the ratchet to pull the cutter down into cutting position.

INSTALLATION

The first step in installation is the removal of unused parts from the slug-casting machine, and the cleaning of the attachment surfaces so that the Corrector will fit on the frame in correct alignment.

Note carefully the position of the lower left-hand elevator slide gib in machines where the right-hand gib is not doweled to the frame, in order not to disturb the adjustment of the elevator slide. Then remove galley, galley brackets, knife block, duplex rail recasting lever, slug stacking arm and pawl and entire knife wiper mechanism, including block and roller on elevator slide where used. Clean gibs and all attachment surfaces indicated by arrows (A), (B), (C), (D), (E), Fig. 1.

In the case of Intertypes having full length gib plates, it is necessary to make a small saw cut at the lower end of the right-hand gib. Mark the gib flush with the top of the vise casting at lower end, and saw along this mark inward to meet a cut extending down from the point where the chamfer begins, leaving a square corner instead of the chamfer.

Loosen left-hand knife bolts slightly, then, using a block of wood and hammer, tap left-hand knife about 1 point to the left in order to clear the slug as it is ejected from mold. Tighten screws.

Note thickness of the gibs. On Linotypes and some models of Intertypes, the lower gibs are $\frac{3}{8}$ in. thick. In other Intertypes the gibs are $\frac{1}{2}$ in. thick. For use with $\frac{3}{8}$ in. gibs two shims are furnished with each Corrector. Hang the right-hand shim (if required) on the right-hand gib in position over the screw hole at point (D) as shown in Fig. 1. Lift Corrector into position, inserting one of the $\frac{1}{2}$ in. bolts through the frame and into threaded hole in vise at point (C), screwing in part way with the fingers to steady the Corrector while other screws are being inserted. Insert screw in point (A). Insert screw at point (D). Then put gib (and shim if required) in position at point (E) and insert screw.

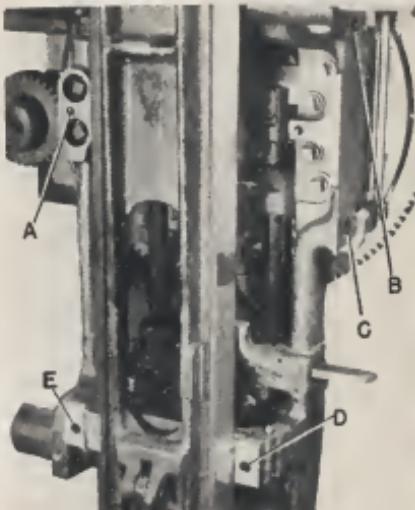


Fig. 1—Stripped machine ready for attachment of Corrector.

Before tightening the screws (A), (D), and (E) entirely, adjust gibs to provide proper clearance and position for the elevator slide. Tighten all screws except (C).

Remove screw (C) and apply spring plate assembly. Make sure that right-hand jaw adjusting screw which is a part of this assembly is backed out far enough so that it does not cramp right-hand jaw. Tighten the two $\frac{1}{2}$ in screws (B) and (C). Insert and tighten two small fillister head screws through spring plate lever into slug bed at points (A) Fig. 2.

Remove standard vise closing spring and replace with the heavy spring furnished, tighten until weight of Corrector is balanced properly. The weight factor should be the same as formerly. Remove low-slagger head after taking off three knurled head nuts and add enough Com-

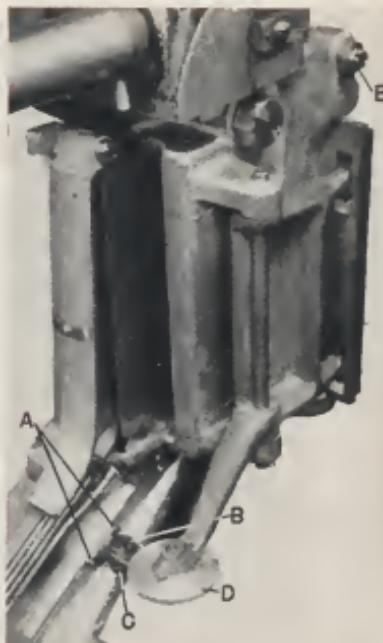


Fig. 2—Spring plate assembly.

pressa 27 Oil to bring the level in the gauge glass on the side of the main housing to about $\frac{1}{2}$ in. Replace head and tighten nuts with screwdriver. Plug exciter cord into receptacle on motor connector box, connect motor to power source of correct characteristics according to data plate on motor, turn on and see that machine runs freely.



Fig. 3—Ejector slide with plate removed for cleaning.

ADJUSTMENT

After a period of operation, many Linotypes accumulate particles of metal in the front of the ejector slide which limit the forward travel of the ejector blade. If this accumulation is sufficiently great, it will be necessary

to clean the slide before satisfactory ejection can be secured. Cast a line and note the manner of ejection of the slug. If the slug is not pushed forward far enough to drop into the chute freely the slide may be cleaned quickly as follows:

Remove one of the molds from its pocket, turn this opening to position in front of the ejector slide, remove three screws (A) Fig. 3 in plate which covers front of slide and take plate off, prying out with a screwdriver in blade slot. Back machine slightly to ejection position and push ejector as far ahead as possible. This will push nearly all of the accumulation out of the slides and the remainder may then be blown or brushed out. Replace plate and screws. Replace mold.

To Adjust Spring Plate

Set point setting ring on Corrector to 6 point and dial (D) Fig. 2 on spring plate lever to 0. Loosen lock nut (C) and turn eccentric screw (B) until opening between left-hand side knife and spring plate will clear 6-point untrimmed slug. Tighten lock nut securely.

Slug Length

Since the right-hand end of the slug is used as the locating point for sawing in the Corrector, it is vital that the position of the type with reference to the end of the slug be exactly correct if accurate sawing is to be secured. Three factors have bearing on the relation mentioned above, and unless all three are checked and found correct, results will not be satisfactory.

LINER LENGTH—No. 1. It is commonly assumed that liners are of exactly correct length, but this is not necessarily the case. The variation found may be as much as three thousandths of an inch long or short. This might mean a total variation of nearly half a point between the end character and the end of slugs cast from different liners. Obviously, unless the liners are of the same length it will not be possible to set the lower saw to trim all slugs at the same point in relation to the end character.

MOLD POSITION—No. 2. Likewise, the position of the mold in the pocket has a direct bearing on accuracy, since if the molds are not accurately located



Fig. 4—Lower saw assembly.

the position of the right-hand liner in relation to the end character is not constant.

SIDE MOTION—No. 3. Side motion of the vise when the locking screws are tightened. This motion is rarely found until the line casting machine has been in operation over a considerable period of time, but in some cases becomes quite severe. If this condition exists, the most advantageous cure is installation of a Curle patented doweled right-hand locking stud and screw, which is so constructed as to eliminate all side motion.

Lower Saw Adjustment

The lower saw slug stop (A) Fig. 4, is adjusted at the factory to the proper position, but the adjustment should be checked at this point, as follows. Set the right-hand jaw adjusting screw (E) Fig. 2 so that a line will cast. Allow the line to progress through the Corrector and inspect the slug. The lower saw should remove just enough metal to square up the right-hand end of the slug. If the cut is not correct, the stop may be adjusted by moving lower saw carriage upward, loosening the lock nut on the end of the stop stud and turning the nut (B) Fig. 4, then tightening the lock nut.

Upper Saw Adjustment

Cast and discard several slugs, say 8-point, allowing mold to reach normal operating temperature, then cast and saw a slug at 28 picas following with four sawed at 7 picas. Cool to room temperature and with the four short slugs placed end to end size up with the 28 pica slug. If the upper saw is correctly

set, the length of the four short slugs will equal the one long slug. If the four short slugs are longer than the 28 pica slug, turn the saw adjusting knob (A) Fig. 5 a little to the right, clockwise, which will shorten the slugs. If already too short, turn counter-clockwise. Repeat above steps and continue trial and adjustment until perfect results are obtained at these measures. When properly set in this manner all other measures will be

accurate. Loosen the set-screw and while holding lead screw (B) turn knob until Zero on knob is opposite flat reference surface of frame and detent snaps into recess. Tighten set-screw and re-check to be sure adjustment has not been disturbed. Keep lead screw and split nut free of metal chips.

Adjusting Right-Hand Jaw

File all liners to correct length in filing jig *discarding any that are short*. Clean out mold pockets, especially right-hand side, and end of mold, replacing

molds and making sure that all are firmly seated against right-hand end of pockets. Cast slugs with a capital "O" on the end of the line. Inspect slug after trimming and adjust right-hand jaw adjusting screw (E) Fig. 2 until the character is exactly flush with the end of the finished slug, neither bleeding nor leaving a shoulder.

Open the vise, close and lock it and cast another slug, repeating several times. If any variation in right-hand trim appears, there is side motion in the vise and Curle doweled right-hand locking screw and stud should be installed. When side motion, if any, has been eliminated, cast slugs in all other molds in the disc, inspecting for accuracy of trim. If variations from mold to mold appear, *liners being accurate*, it indicates that molds are not properly positioned in pockets and it will be necessary to shift them to bring the trim in all molds to the same point.

Adjusting Left-Hand Stop

Having set the saws to cut accurately to measure, it is next necessary to adjust the left-hand jaw to position the type correctly on the slug so that it will not bleed or leave a shoulder. The adjustment is made in the usual manner by loosening the set-screw and turning the adjusting collar on the Linotype, or by loosening the lock-nut and adjusting screw on the Intertype. The adjustment should be made with the jaws set at some measure that is rarely used, such as 19½ picas, etc. When the adjustment is correct for this measure, try slugs cast and sawed to different measures, particularly those most used. If there is any tendency to bleed on one or more of these measures, it indicates a worn left-hand jaw adjusting rod, which must be replaced. In the course of three or four years of service this rod will wear so that the type face on measures most used will be appreciably longer than standard when little-used measures are of correct length.

In case there is a tendency to bleed on some lines and not on others of the same measure, it is probable that the cause is improper operation of the left-hand vise jaw wedge. This wedge must go to the full upward extent of its travel on second justification in order to close the jaws to the proper position. Failure to do so may be due to one of two causes other than tight lines—the justification spring may be too strong, or the wedge spring may be too weak. The main justification spring should have its tension adjusted until a spring balance hooked on the front end of the justification lever will indicate 40 pounds when the pull on the scale just balances the justification spring. If this tension is correct and the vise jaw wedge still does not reach the full extent of travel, make sure that the wedge fork is straight and not binding. It may be necessary to install a new wedge spring to insure the travel to the proper point.

Concavity of Slug

When properly adjusted, the Corrector will trim the slugs so that they are slightly concave—that is, the point midway between top and bottom is slightly

thinner than either top or bottom. This condition is attained by caning the side cutter to assume a very small angle in relation to the side of the slug so that all trimming is done by the leading edge of the cutter. This adjustment should be necessary very rarely, such as after dismantling and replacing of the side trimmer assembly, and is accomplished by adjusting cap screws (A) and (B) Fig. 6. Examine the slug after trimming and determine from the curvature of the trimmer marks on the ribs whether the leading or trailing edge of the cutter is making the final cut. Turning out on screw (A) and in on screw (B) will cause the trailing edge of the cutter to project farther. Continue the adjustment a quarter turn at a time until marks of both leading and trailing edges can be seen on the same slug. Make sure that both screws (A) and (B) are set up snugly at this point, then turn screw (B) out one-quarter turn and turn screw (A) in the same amount to a firm seating. This will eliminate the marks from the trailing edge of the cutter and provide the optimum setting.

Top-Bottom Thickness

This adjustment is also rarely necessary but when required is accomplished as follows. Cast and trim five slugs. Measure them all together accurately top and bottom on all ribs, securing the average of all readings. If the bottom of five slugs together measures a total thickness from .0005 to .001 greater than the top, the adjustment is correct for optimum operation. Should the difference be more than this, or if the top of the slugs is thicker than the bottom, adjust top and bottom capstan screws (C) and (D) Fig. 6 to reach about this reading. Remember that the screws must be firmly seated, and that in changing them one screw must be turned out and then the opposite one turned in by a corresponding amount. Turning out on the upper screw (C) and in on the lower screw (D) will make the slug thinner at the top and thicker at the bottom, and vice versa.

Thickness of Slug

The thickness of slug is correctly adjusted at the factory to slug casting machine standard of .014 in. to a point or .084 for 6 points, .168 for 12 points, etc., so that when the correct setting is obtained for any one size, all the other sizes indicated on the point setting ring will also be correct. If adjustment becomes necessary, as when changing cutters, it is easily accomplished by turning the knurled ring (E) Fig. 6. Turning this ring away from

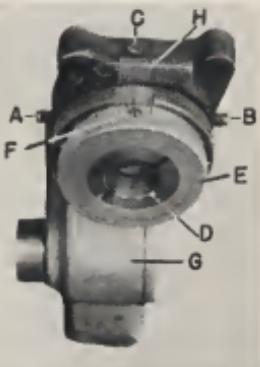


Fig. 6—Side trimmer adjustment assembly.

the operator (clockwise) will cause the slug to be trimmed thinner, while turning toward the operator will make the slugs thicker. The graduations are in thousandths of an inch, and since there are seven graduations each way from the set-screw (F) which is the index point, the trim may be adjusted by thousandths of an inch up to $\frac{1}{2}$ point over or under the standard setting.

In case a new cutter is installed, it will be necessary to reset the index ring as follows. Back the adjusting ring out counter-clockwise about a full turn and cast a slug. If no trim is shown, turn in a little at a time until the slug appears to be trimmed approximately correctly. Measure with micrometer and continue to adjust until the correct trim is obtained. Now loosen the set-screw, hold the core to prevent turning, and rotate the knurled aluminum ring until the set-screw is opposite the index mark (F) Fig. 6. Tighten set-screw and recheck.

To change from one point size to another, press down on the rear portion of the point ring latch which will lift the pawl out of the recess in the point ring. Move the point ring by means of the handle to a position such that the opening is greater than the size desired, then pushing back on the handle bring the proper recess in line with the pawl. A slight pressure on the pawl will cause it to snap down into the recess.

Short Slugs

Four positions are provided for the lower saw making possible the use of liners to give three measures of slugs shorter than full 30-pica capacity. These positions are at 30, 24, 18 and 12 picas. In any case it is necessary to set the lower saw in the correct position to correspond with the length of slug being cast in order that the slug will be held down by the slug pusher until stopped by the saw clamps. *Use only liners for 30, 24, 18, and 12 picas.*

To set the lower saw it is only necessary to loosen the knurled nut (C) Fig. 4 and pull up on the set plate (D) Fig. 4. The saw housing is now free to be moved to the required position. Seat the wedge (D) in the proper slot in the main frame and tighten the nut. If the saw housing binds, sometimes a gentle tap downward on the nut is necessary to release the locking gib. The proper position for the slug to be cast will be approximately indicated by the reading of the saw setting scale, which travels upward with the lower saw housing. This scale will read a maximum of about 24 picas when the locking wedge is in the correct slot for handling 24 pica slugs, etc. Since the scale moves with the lower saw assembly, the reading indicated by the upper edge of the index on the upper saw is correct at any setting within the limits of the slug length.

Place the auxiliary rail in the proper pair of slots in the galley and the sawed slugs will be stacked as delivered from the saw.

It is not possible to pass slugs through the Corrector which are longer than the measure for which the lower saw is set. No damage will result, however, the safety clutch takes the strain, slips and makes a tapping noise. In case this occurs, stop the motor, loosen the nut and set plate on lower saw

housing, allowing it to drop to the lowest position, lift up low slugger control button, and open the point ring. The oversize slug can now be removed from the machine. In some cases it may be necessary to back the machine slightly by use of the hand wheel on the motor. When the cause of stoppage has been removed, reset Corrector and start motor.

Saws and Cutters

The saws and cutters used on the Curle Slug Corrector are made of the best alloy high speed steel, accurately ground to predetermined angles for the most efficient cutting. The upper saw is hollow ground on both sides, with the cutting edge sharpened to a point on the side running next to the type.

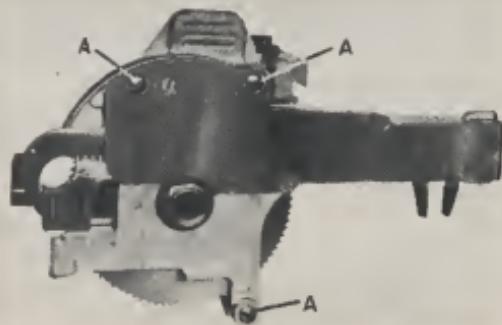


Fig. 7—Upper saw assembly.

This causes this side to cut through the slug first thereby leaving the fin of metal turned out at the end of the cut attached to the waste end of the slug. The lower saw is sharpened square across, and is hollow ground only on one side, that which runs next to the slug. In installing it is well to use care lest the saws be put on the shaft so as to run backwards, since while they will cut in this position the cut will be rough and a considerable burr will remain on the slug.

The side trimming cutter has twelve teeth, while that used for low slug-
ging has twenty-four teeth.

Since the correct angles and clearances of both saws and cutters are highly important for satisfactory operation, sharpening should be done only at the factory.

The useful life of cutters and saws between sharpenings depends upon the amount of grit in the type metal, barring accidental contact of the rapidly rotating teeth with any material other than slugs. At the speed of 4200 r.p.m. which the saws and cutters travel, the slightest touch against screwdrivers,

oil can spouts, etc., will destroy the keenness of the cutting edge and necessitate sharpening. There is inevitably a certain amount of grit and oxides in re-used type metal. The amount of this grit depends to a large extent upon the thoroughness of cleaning in remelting the used slugs. Care in this operation will pay worth-while dividends in better quality slugs as well as in increased life of the cutting edges in the Corrector. A temperature of at least 600 degrees should be reached and maintained in the remelting pot during stirring and skimming. If this is done the reduction of the dross takes place rapidly and the considerable amounts of tin which otherwise might be skimmed off are worked back into the metal. The dross will break down into a dark-colored dust which can be removed with a minimum of loss. Stirring and skimming should be continued until the last of the grit is removed.

Changing Saws

UPPER SAW: Loosen the screw holding the clip over the saw oiler tube and remove the oiler from the saw carriage by sliding forward off of the lugs. Remove the three fillister head screws (A) Fig. 7, which will allow the saw clamp assembly to be separated from the saw carriage, exposing the saw mandrel nut. Set the saw carriage at about mid scale as shown in Fig. 8, place a wrench on the flat of the shaft as shown and with another wrench loosen the mandrel nut. Upper saw mandrel nut has a *right-hand thread*. Remove the cover from the lower end of the saw shaft which is held with four screws. Using the wrench on the flat of the shaft as a lever, work the saw shaft and lower bearing out far enough to permit the dull saw to be removed from the machine.

Make sure that the saw mandrel and mandrel nut are clean, place the sharp saw in position and screw on mandrel nut. Replace saw shaft, making sure that the two keys in saw mandrel enter the keyways, not the flats on the end of the shaft. Tighten saw mandrel nut gently. Replace saw clamp assembly and oiler.

LOWER SAW: To change the lower saw, the operations are essentially the same as outlined above, except that there is no oiler to be removed, and that the lower saw mandrel has *left-hand threads*.

SLUG END EJECTOR: The slug end ejector is fastened to the upper saw clamp. Its purpose is to prevent waste ends of slugs from falling back into the



Fig. 8—Changing upper saw.

galley. The adjustment should be maintained quite closely as follows: The tip of the spring should just barely touch the slug when clamped. If it projects too far, thin fins of metals may be formed and thrown into the galley. Be sure that the ejector will clear the saw blade before operating. There should be about 1/32-inch clearance.

SLUG END GUARD: The slug end guard, at "A," Fig. 13, is designed to assist in disposing of waste ends of sawed slugs. When in proper position, the right-hand side of the fingers will be 1/16 inch to the left of the edge of the main frame, as shown in Fig. 13. The timing of the finger is adjustable by turning the cam located on the saw clamp drive shaft shown in Fig. 12. The finger should move downward so that it just clears the end of the slug as the latter is pulled into the saws. If this is not the case, loosen set screw "A." Fig. 12, and adjust the cam until the timing is correct.

Changing Cutters

SIDE CUTTER: To change the side trimming cutter, remove low slugger head and screws holding side cutter shield and remove shield after tripping latch (H) Fig. 6 at right-hand end of spindle to allow cutter to move to the right against the case. The point ring should be opened to 36-point position. Place a wrench on the flat of the saw shaft, and using a 30-pica slug and hammer tap against the teeth of the cutter in direction of normal rotation until loosened. With a long screwdriver remove the screw in center of the cutter. Work the cutter off its seat, turning the cutter and pushing it off a little at a time to avoid binding on the seat, which is a very close fit. Before replacing cutter clean seats thoroughly, making sure there are no particles of dirt which

might prevent proper seating. Work cutter onto seat, insert screw and tighten gently. Replace parts which were removed, turn micrometer adjusting ring counter-clockwise about one turn and proceed with adjustment as outlined under slug thickness (page 8).

CHANGING LOW SLUG CUTTER: Remove low slugger head. Remove four screws which hold cutter guard on housing and remove guard. Hold fiber pinion with one hand and loosen the screw in center of cutter. This screw has a *left-hand thread*. Work cutter off of spindle, being sure to clean seats before replacing cutter. Place sharp cutter in position and see that it is properly seated, insert screw

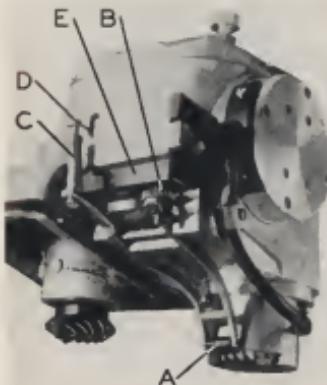


Fig. 9—Low slugger head.

and tighten gently. Reassemble parts. Remove four screws holding round cover plate on top of housing and turn the depth adjusting screw (C) Fig. 10 counter-clockwise $1\frac{1}{2}$ turns. Place in operation and adjust for proper depth of cut. Never turn adjusting screw while machine is in operation, unless the low slugger on-off button (B) Fig. 10 is pulled up. Otherwise there is danger of running the cutter into the cutter guard.

Low Slugger Trip Adjustment

The action of the low slug trip mechanism, which causes the cutter to drop into cutting position on blank portions of the slug and to rise out of action wherever type appears, is governed by the small rubber covered roller (A)

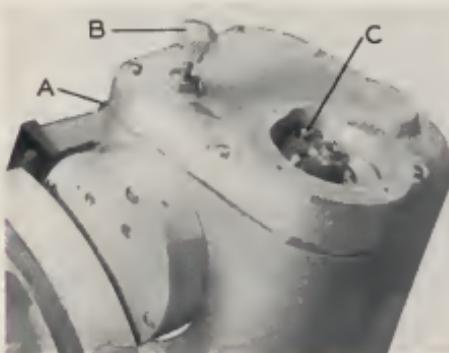


Fig. 10—Low slugger head, top view.

rect. This screw should be adjusted only one or two *notches* of the knurl at a time, as the adjustment is quite sensitive. Turn the screw in until the cutter does not rout blank portions of the slug. Then turn out one notch at a time until the cutter operates properly. As the roller wears to a slightly smaller diameter it may be necessary to screw out on the adjustment screw one notch to obtain correct operation.

The counterbalance spring (C) Fig. 9 should be adjusted to the lightest tension which will overcome the tension of the switch spring and still give positive action of the low slugger roller. This adjustment is made by turning screw (D) Fig. 9.

Back or Left-Hand Knife

The back knife which trims off any overhang on the smooth side of the slug will seldom require adjustment. When properly set, the finished slug will show a very faint trace of trim along the blank parts of a slug which has

Fig. 9, which is supported in a steel frame suspended from the low slugger housing. Since the maximum difference of height between type and blank slug is only .043 inch, it is necessary that the throw of this roller be accurately adjusted. This adjustment is made by turning the knurled-head screw (B) Fig. 9 until the action of the low slugger cutter is correct.

not been low-slugged. A deeper cut than this may bleed into the top of high-aligning faces, and if less is removed, there will be a tendency to excess thickness at the top of the slugs. To adjust, insert a small screwdriver in hole (B) Fig. 13 in lower slug guide shoe and turn out several turns. Push up on the screw to loosen the locking wedge (C). Back out on screw (D) one or two turns, and then tighten locking wedge screw. With low slugger out of operation, pass slugs through the Corrector, turning in on screw (D) a little at a time until correct adjustment is reached. Replace chip shield. If necessary to replace the back-knife for sharpening, remove chip-chute (A) Fig. 11, and the chip shield (B) which will be found beneath it. Then proceed as above, removing long screw from hole (B) Fig. 13, together with the spring and locking wedge. The knife can now be removed. Blow all dirt out of seats of knife, insert sharp knife, reassemble parts and proceed with adjustment for proper trim as outlined above.

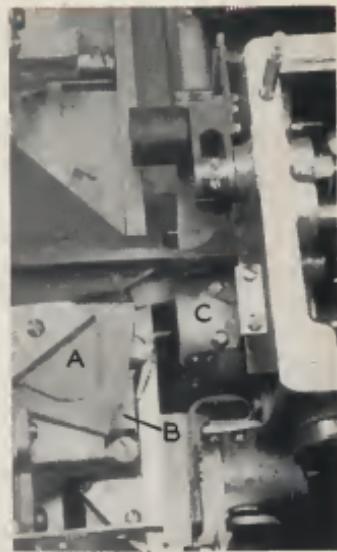


Fig. 11—Slug channel.



Fig. 12

Adjustment of Pressure Bars

CENTER PRESSURE BAR: The center pressure bar (B) Fig. 14 should project beyond the cutter teeth by two points. To determine the correct setting, open the point ring and place a trimmed slug in position at cutter. Close up slowly on point ring, noting the position when ribs first touch center pressure bar. Note reading of point ring. It should be two points greater than the trimmed size of the slug being used for test. If this pressure bar has been bent out of shape install a new part, as this steel is too hard to be straightened.

LOWER PRESSURE BAR: The lower pressure bar should be so mounted that



Fig. 13—Back knife adjustment.

it is at an angle with the rib side of the slug when free, such that the space at the upper end is about 3 points more than at lower tip. The spacing of the pressure bar may be adjusted as follows: Pass a slug through the Corrector, and stop the machine when the lower end of the slug has just reached a point opposite the end of the bracket (E) Fig. 13. By loosening the two screws (F) Fig. 13, the pressure bar may be moved until it just touches the end of the slug; tighten screws.

BURR SCRAPER: The burr scraper is a small piece of spring steel screwed to the lower pressure bar. This scraper should be adjusted in position so that any burrs which may be left on the rib side of the slug by the low slugger are removed. The scraper may be bent with pliers so that it projects slightly to the left of the rubbing surface of the pressure bar. The upper edge of the scraper should be tipped slightly to the left.

Saw Stroke Adjustment

The adjustment of the length of stroke of the saw clamp mechanism is enclosed in housing (G) Fig. 6. A detail view of this mechanism is shown in Fig. 15. To adjust, loosen the two screws (A) Fig. 15. With a pin inserted in holes, turn (B) counter-clockwise

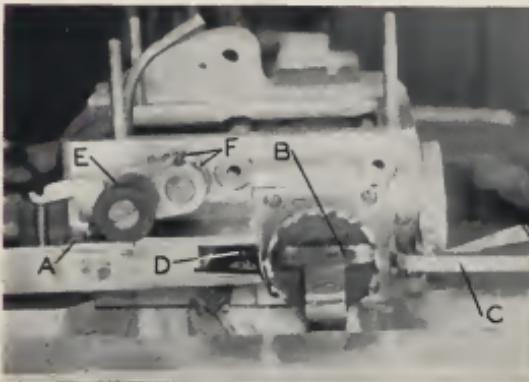


Fig. 14—Pressure bars and side cutter.

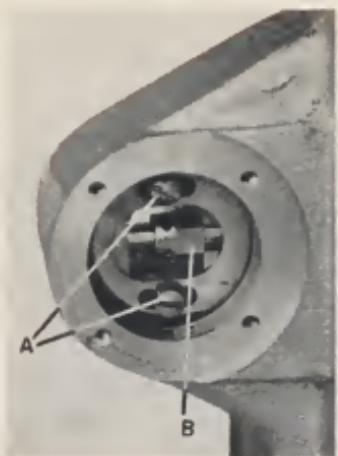


Fig. 15—Saw clamp shaft stroke adjustment.

made in these settings. Check by aligning slug with edge of main frame just before entering saws, readjust if necessary.

Slug Feed Arm Adjustment

The slug feed arm should be adjusted so that when the pusher reaches the bottom of its stroke, the slug is held firmly against the slug stop. With pusher in this position press upward on pusher. The pusher should project about 2 points past the end of the slug guide. To adjust, loosen locking screw (A) Fig. 17, and adjust set screw. Tighten locking screw and check.

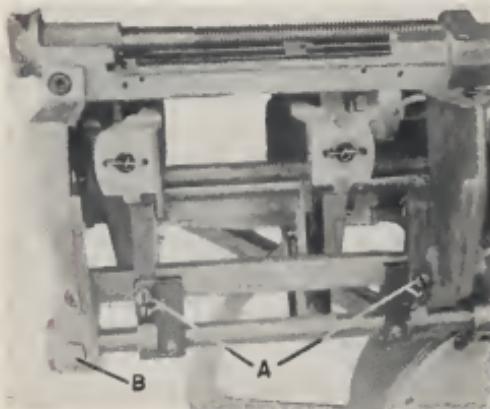


Fig. 16—Saw clamp arm adjustment.

Clutch Adjustment

The safety clutch incorporated in the

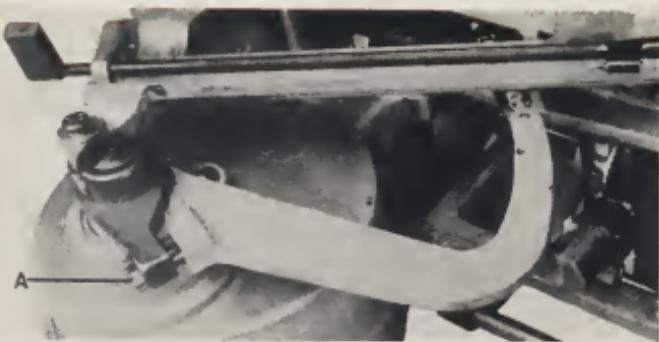


Fig. 17—Saw feed arm adjustment.

Corrector is of the ball detent type, is not subject to wear or "freezing," and in normal operation should not require adjustment. Clutch slippage usually

indicates that there is undue load either on the feed arm or saw driving assembly. Determine where excess load lies, and rectify by cleaning pusher slide or saw clamp assemblies and oiling properly.

If clutch still tends to slip with all parts operating freely, it may be adjusted as follows: Remove cloth guard from attachment around right-hand side of Corrector. Remove shield over saw clamps. Take out lock-screw (B) Fig. 16, and push saw feed arm bushing out of frame, allowing shaft to clear housing cover. Remove 8 cover screws, allowing oil to drain in pan. Remove housing cover. Insert screwdriver bit between lockwasher and nut (A) Fig. 18, and turn adjusting nut in $\frac{1}{16}$ turn to tighten, allowing lock-washer finger to drop into notch in cut. Replace cover, taking

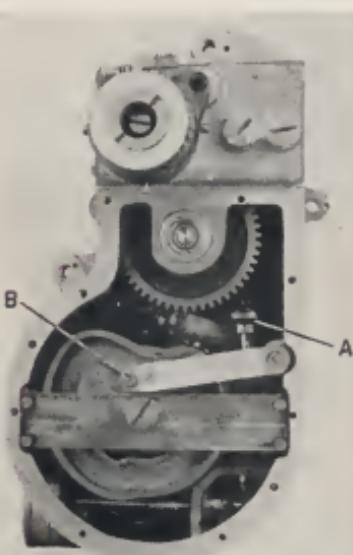


Fig. 18—Main housing. Clutch adjustment.

care that flat milled around hole in saw feed cross slide (A) Fig. 19, is exposed in the position shown. The pin in cam arm (B) Fig. 18 must be inserted in this hole when replacing cover. Tighten screws, start motor and allow mechanism to reach neutral, reassemble saw feed arm assembly, saw clamp guard and cloth shield. Add oil to proper point in gauge glass.

MAINTENANCE

To give best satisfaction the Curle Slug Corrector requires a small amount of daily service. A few minutes regularly devoted to care of the machine will insure the continued satisfactory operation of which it is capable.

OILING: Two points must be oiled daily. The upper saw wick oiler reservoir must be filled each shift with special saw oil. If special oil is not available, 600W steam cylinder oil may be used temporarily. This oiler is located on the upper saw carriage and is filled through the oil pipe and fitting located beside the adjustment clamp. Use a pressure gun and fill until oil overflows through the breather hole in upper side of the oil reservoir. The slug pusher should be oiled daily. Trip the machine, start motor and allow the pusher to move to the bottom of the stroke, then stop motor. Run a few drops of saw oil into the pusher channel at upper end of slug guide, and also put two or three drops on top of pusher which is at bottom of stroke. The oil level in the main housing should be maintained so that about $\frac{1}{2}$ inch of oil shows in the gauge glass. For this purpose use only Shell Oil Co. Compressa 27 oil or equivalent. This oil has a viscosity of 150 Saybold at 100°, is especially designed for service of this type and will cut down the power consumption, as well as minimizing wear.

CLEANING: The Corrector should be cleaned every day. This cleaning can only be done in a thorough manner by use of an air blast. All parts of the machine should be cleaned off thoroughly, not overlooking the chips which accumulate around the side cutter and trip, which can best be removed by inserting the air nozzle up from the under side of the Corrector and moving about until all chips have been blown out. Oil leakage around the low slugger head may take place if the head is not properly seated and tightened after removal. This oil leakage increases the accumulation of chips, and when it occurs it is advisable to wash the Corrector down with solvent or gasoline, blowing dry with the air blast. Flush out pusher channel with gasoline or solvent once a week. Release side cutter latch, allowing cutter to move back. Trip machine and run gasoline into upper end of pusher slide while pusher

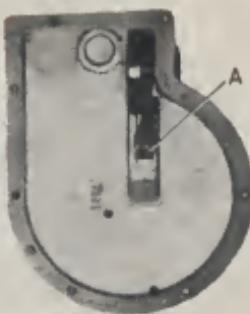


Fig. 19—Main housing cover.

is moving up and down. Continue until particles of dirt and metal are washed out. Allow to drain, or blow out, then oil pusher slide.

If motion of saw clamps becomes rough, it is due to accumulation of dirt and chips in clamp slides. Remove saw clamp shield, take out four screws in side cover plate, Fig. 7, and two screws holding inner finger spring assembly to saw clamp housing. Wash clamps and slides with gasoline, wiping clean. Lubricate and reassemble, taking care that small roller on clamp finger is in place.

INSTRUCTIONS FOR SERVICING THE CURLE SLUG CORRECTOR

Installation Check

Spring plate; ejector and entrance to machine; pusher adjustment; slug thickness and taper, top to bottom; check slugs for parallel thickness (get marks); slug length on four mold positions; jaw adjustments; burr scrapers. (See pages 1 to 9.)

Instruct operators in plant on saw and cutter changes.

Depth of low slug cut. Position of low slug trip roll. Check low slug trip adjustment. Check trip with 6-point, 12-em slug.

Position of molds in disk.

Service Adjustments

Slugs that fail to enter Corrector properly: Opening between left-hand knife and spring plate should be one point over untrimmed thickness of slug. On machines using head-letter molds this adjustment must be held close to keep slug from turning as it is ejected from the mold. Slug buffer bracket should be parallel with machined surface of vise. Sufficient clearance should be maintained between slug buffer bracket and outside of spring plate.

Trip Failure

Clean out chips in front of cutter and around the trip.

Check slug seater roll adjustment. Adjust roll when machine is in normal position one-sixteenth inch above type face.

The trip latch spring may be too strong. Trip latch may engage too deep in reset rod. This latch should engage two points deep in notch in reset rod. If engagement is more than this, carefully grind off stock on surface the full width of latch.

If Machine Repeats

Increase tension on trip latch spring. Check engagement of trip latch in reset rod. Trip latch should engage two points in notch of reset rod. If trip latch does not engage deep enough grind off end of trip latch that contacts flat on trip shaft. This will allow trip latch to engage deeper in reset rod. Adjust plate on trip latch. This plate should contact flat spring on reset rod one-sixteenth inch before rod reaches full height of stroke.

Inaccurate Slugs

Be sure that all burrs and rough spots are removed from the back bar. Side cutter must be sharp. Back knife must be sharp. If knife is dull it will crowd slug into side cutter resulting in inaccuracy along the top of slug. Center pressure spring should have 2 points pressure on slug. To check set point-setting ring 2 points over thickness of trimmed slug. The spring should just touch the slug. Pressure on the slug applied by the slug clamp must be as close to the side cutter as possible. To check, latch out side cutter and send through untrimmed slug. There should be definite marks near the top and bottom of the slug on the rib side. The reason for inaccuracy along the top or bottom of the slug is that there is not sufficient pressure. The pressure must be divided between the top spring and the bottom projection of the slug clamp as near the cutter as possible.

If inaccuracy occurs at the bottom of the slug, remove the safety plate, flat spring and brass cutter guard. Trip machine and bend the lower projection (in front of cutter) toward back bar. Do not bend out more than one-half point. Reassemble and check.

When slug is inaccurate along the top, remove slug seater roll spring, then, with untrimmed slug trip machine. Lift the slug seater roll assembly. This will move slug clamp away from slug. Note movement of the end of flat spring in front of the cutter. This spring should contact slug ribs not more than one-sixteenth inch before slug is clamped. When the slug is clamped, the end of the clamp bar (near the spring plate) should have just enough pressure on the slug to hold it against the back bar.

Saw Adjustments

Set lower saw stop to take proper trim cut. Adjust upper saw to proper slug length. Set right and left hand jaws to position type on slugs. If the length of type face is not uniform it may be necessary to install a new left hand jaw adjusting rod.

Slug Length Varies

Slug end ejector spring on upper saw clamp must not project beyond the face of the saw clamp. Remove saw adjustment screw and clean out threads on nut section.

Saw Clamp Motion Not Smooth

Remove saw clamp assembly cover plate, and clean out chips that accumulate in clamp channels. Be sure that clamps are straight and smooth.

Low Slugger Head

Adjustment of trip. Remove head and aluminum guard under the point setting ring. Replace head. Trip head so that cutter is up. Open point ring and pass blank slug under low slugger trip roll. The roll should be lower than the height of the blank slug. Pass slug with type under roll. There should be clearance between roll and cutter guard so that the roll may turn freely. Run slugs that have about 6 cms quadded space through machine. Turn trip adjusting screw (under switch) to the left until cutter removes all part of the type.

Then turn adjusting screw to the right five notches, completing the adjustment. If head cuts type from the right hand end of some lines remove the top of the head (five screws). Increase the tension of the spring fastened to the ratchet cam. This spring pulls the cam back when type raises the trip roll. If the spring does not have enough tension to pull the cam back the cutter stays down and cuts off the type. On d.c. heads never cut more than two coils off the spring without checking results.

Damaged or Scratched Faces

Be sure that low slug trip roll is free on shaft. Ream out hole with No. 39 drill. Check adjustment of slug seater roll. Be sure that there is clearance between low slug cutter guard and trip roll. Examine bottom of slug for heavy fins or burrs that would hold the slug too high. Open point setting ring and trip head so that cutter is up. Pass slug with type under cutter guard. There must be one-thirty-second inch clearance between type face and bottom of guard.

Motor

To remove the motor remove the cover plate over coupling. Loosen two set screws in coupling and slide coupling to the right. Take out four screws holding the motor to the end bell.

The Curle Slug Corrector is an ultra precision piece of equipment. It will give years of satisfactory service if kept in adjustment, clean, and properly lubricated. For further information write the factory:



SUPPLEMENTAL NOTES

3 - Blades cleaned (Both) 9/2/81



